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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,557	09/27/2001	Richard Charles Allen	55871US002	4597
32692	7590	11/01/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			PRITCHETT, JOSHUA L	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			2872	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.P

**Office Action Summary**

Application No.

09/966,557

Applicant(s)

ALLEN ET AL.

Examiner

Joshua L. Pritchett

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This action is in response to Request for Continued Examination filed July 29, 2005 and Amendment filed July 5, 2005. Claims 1, 16-18, 21 and 25 have been amended as requested by the applicant.

#### ***Drawings***

Figures 1A-1C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8, 9, 13, 17, 18 and 21-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto (US 6,002,460).

Regarding claims 1, 18, 21 and 25, Yamamoto discloses a polarizer element (15) having a polarization axis, wherein the polarizer element preferentially transmits light having a polarization axis that is parallel to the polarization axis of the polarization element (col. 5 lines 10-15) and a separate polarization rotator element (12) disposed in the film and configured and arranged to rotate the polarization axis of the light transmitted by the polarizer element to align with another polarization axis that forms an angle of at least 5 degrees with respect to the polarization axis of the polarizer element (col. 5 lines 10-24), where the polarizer element and the separate polarization rotator element are integrated to form a single film (Fig. 2). Yamamoto further discloses a light source (23) and a liquid crystal cell (Fig. 2).

Regarding claims 2, 22 and 26, Yamamoto discloses a first (15) and second (14) polarizer element having polarization axes that differ by at least 5 degrees (col. 5 lines 10-24) and wherein the polarization rotator element is disposed between the first and second polarizer elements (Fig. 2).

Regarding claims 3 and 23, Yamamoto discloses the polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer element to within five degrees of the polarization axis of the second polarization element (col. 5 lines 10-24).

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Regarding claims 4 and 24, Yamamoto discloses the polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer to the polarization axis of the second polarizer element (col. 5 lines 10-24).

Regarding claim 8, Yamamoto discloses the polarizer element comprises a surface to facilitate alignment of the polarization rotator element (col. 5 lines 10-24).

Regarding claim 9, Yamamoto discloses the polarization rotator element comprises a liquid crystal material (col. 5 line 15).

Regarding claim 13, Yamamoto discloses the polarizer element comprises a reflective polarizer (col. 4 lines 10-11).

Regarding claim 17, Yamamoto discloses the polarization rotator element rotates the polarization axis of the light that is transmitted by the polarizer element by an angle in the range of 85 to 95 degrees (col. 5 lines 10-24).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460) in view of Hansen (US 5,986,730).

Yamamoto teaches the invention as claimed but lacks reference to the use of absorbing polarizer elements. Hansen teaches that polarizer elements can be either reflective or absorbing based on the preference of the user (col. 7). A reflective polarizer may introduce some destructive interference when the light is reflected, thus decreasing the transmitted light intensity. An absorbing polarizer would increase the heat within the system by absorbing the light energy. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include reflective or absorbing polarizers as taught by Hansen for the purpose of limiting the polarization of transmitted light based on the preference of the user.

Claims 6, 7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460) in view of Shingaki (EP 0487047).

Regarding claims 6 and 7, Yamamoto teaches the invention as claimed but lacks reference to an alignment layer. Shingaki teaches the use of an alignment layer (col. 1 lines 26-32) between the polarizer element and a polarization rotator element. It is further well known in the art that alignment layers can be made of photoaligned polymeric material. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include the Shingaki alignment layer for the purpose of maintaining a proper alignment between the polarizer element and the polarization rotator element to maximize the intensity of transmitted light.

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Regarding claims 10-12, Yamamoto teaches the invention as claimed but lacks reference to a polarization rotator element that is not a liquid crystal. Shingaki teaches the use of a rotator element that is not a liquid crystal that will absorb some incident light and diffuse some of the incident light (abstract). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include a rotator of the material taught by Shingaki for the purpose of creating a polarization rotator that is not adjustable based voltage applied to the rotator to provide consistent precise results.

Claims 16 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6,002,460).

Regarding claim 16, Yamamoto teaches the invention as claimed but lacks reference to the claimed rotation angle. A rotation angle of 45 degrees is extremely well known in the art. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the polarization rotator element of Yamamoto rotate the polarization of the incident light by 45 degrees as is known in the art for the purpose of transmitting a portion of both s and p polarization to the second polarizer element.

Regarding claim 19, Yamamoto teaches the invention as claimed but lacks reference to the use of a chiral nematic liquid crystal. Chiral nematic liquid crystals are extremely well known in the art. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Yamamoto invention include the chiral nematic liquid crystal as is known in the art for the purpose of precise and accurate actuation of the liquid crystal material based on the applied voltage.

### *Response to Arguments*

Applicant's arguments, see Amendment, filed July 5, 2005, with respect to the rejection(s) of claim(s) 1 under Shingaki in view of Bailey have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yamamoto. Applicant argued that the Shingaki reference could not have the rotator included in the same film as the polarizer element because the rotator itself must be capable of rotation to adjust for temperature changes. The Yamamoto reference teaches the claimed limitations as discussed above.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP



**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**